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DEFENSE DATA NETWORK SUPPORT CONCEPT ANALYSIS(U)  
DYNAMICS RESEARCH CORP WILMINGTON MA L S COHEN ET AL.  
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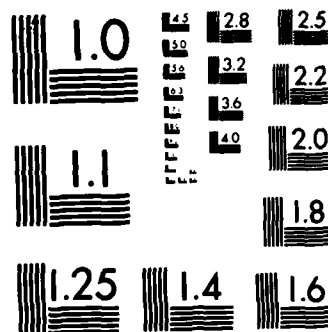
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**Final  
Technical Briefing**

**DEFENSE DATA NETWORK  
SUPPORT CONCEPT ANALYSIS**

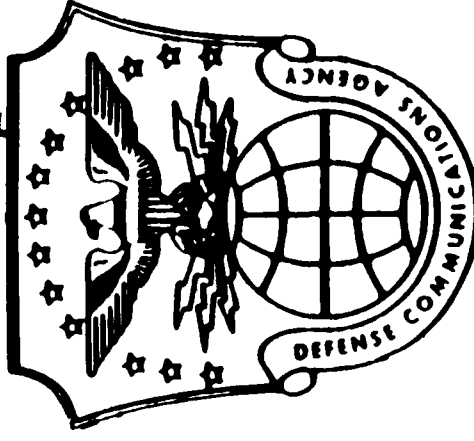
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# DEFENSE DATA NETWORK SUPPORT CONCEPT COMPARATIVE ANALYSIS

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Louis S. Cohen  
William J. Miller

**DYNAMICS RESEARCH CORPORATION**

JANUARY 1985

# **DDN SUPPORT CONCEPT COMPARATIVE ANALYSIS**

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## **OVERVIEW**

- **INTRODUCTION**
- **BASELINE COMPARISON SYSTEM**
- **QUALITATIVE ANALYSIS**
- **QUANTITATIVE ANALYSIS**
- **SENSITIVITY ANALYSES**
- **ISSUES**
- **OBSERVATIONS**
- **RECOMMENDATIONS**

# **INTRODUCTION**

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## **TASK OBJECTIVES**

- **ANALYZE REQUIREMENTS FOR**
  - **SOLE SOURCE CONTRACTOR SUPPORT**
  - **COMPETITIVELY PROCURED CONTRACTOR SUPPORT**
  - **ORGANIC ON-SITE AND CONTRACTOR OFF-SITE SUPPORT**
  - **ORGANIC SUPPORT**
- **RECOMMEND A SUPPORT CONCEPT**

# **INTRODUCTION**

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## **SCHEDULE**

- **START TASK 26 SEP 84**
- **TECHNICAL BRIEFING 30 OCT 84**
- **DRAFT REPORT 26 NOV 84**
- **FINAL REPORT 26 DEC 84**



# **INTRODUCTION**

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## **APPROACH**

- **STRUCTURED ANALYSIS - LOGISTICS SUPPORT ELEMENTS**
- **BASELINE COMPARISON SYSTEM**
- **QUALITATIVE ANALYSIS**
- **QUANTITATIVE ANALYSIS**

# **BASELINE COMPARISON SYSTEM**

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## **DDN SYSTEM DESCRIPTION**

### **BACKBONE NETWORK**

- **PACKET SWITCHING NODES**
- **COMMUNICATION LINKS AND DEVICES**
  - **MODEMS**
  - **MUXES**
  - **CRYPTO**

### **ACCESS NETWORK**

- **TAC**
- **COMMUNICATIONS LINKS AND DEVICES**
  - **MODEMS**
    - **DIAL-UPS AT TAC**
  - **CRYPTO**

# **BASELINE COMPARISON SYSTEM**

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## **LOGISTICS ELEMENTS SELECTED**

- **MAINTENANCE PLANNING**
- **SUPPLY SUPPORT**
- **SUPPORT EQUIPMENT (SE)**
- **TECHNICAL DATA**
- **MANPOWER AND PERSONNEL**
- **TRAINING AND TRAINING DEVICES**
- **PACKAGING, HANDLING, STORAGE AND  
TRANSPORTATION (PHS&T)**
- **FACILITIES**

# **BASELINE COMPARISON SYSTEM**

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## **OTHER LOGISTICS ELEMENTS**

- **ILS TESTING AND EVALUATION (T&E)**
- **RELIABILITY AND MAINTAINABILITY INTERFACE**
- **LOGISTICS SUPPORT RESOURCE FUNDS**
- **LOGISTICS SUPPORT MANAGEMENT INFORMATION**
- **COMPUTER RESOURCES SUPPORT**
- **ENERGY MANAGEMENT**
- **SURVIVABILITY**

# **BASELINE COMPARISON SYSTEM**

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## **OTHER DESCRIPTIVE FACTORS**

- **HARDWARE**
  - C-30s, C-70s, TAC — COMMON SUITE OF BOARDS
  - BOARDS, HARNESES, CABINETS, PERIPHERALS
- **MAINTENANCE MANPOWER**
  - BBN SKILLED TECHNICIANS
- **SPARES LOCATIONS**
  - BBNCC, STUTTGART, EUROPEAN SITES, FIELD SERVICE REPS, WIN SITES
- **DEPOT REPAIR**
  - SCREENING AND REPAIR AT BBNCC AND STUTTGART
  - MAJOR REPAIRS AT BBNCC SHARED WITH MANUFACTURING
- **NETWORK OPERATIONS CENTER (NOC)**
  - CONTROLLERS, FIREFIGHTERS

# SOLE SOURCE CONTRACTOR SUPPORT (THE BASELINE SYSTEM)

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LOGISTICS ELEMENT	REQUIREMENT FULFILLED BY	REMARKS
MAINTENANCE	CONTRACTOR-SOLE SOURCE	SITE AND DEPOT SPARES
SUPPLY	CONTRACTOR-SOLE SOURCE	SITE - NONE DEPOT - CONTRACTOR
S.E.	CONTRACTOR	SITE AND DEPOT
DATA	CONTRACTOR	SITE AND DEPOT
MANPOWER	CONTRACTOR	TRAINING REQUIRED FOR CONTRACTOR TECHNICIANS
TRAINING	CONTRACTOR	ALL TRANSPORTATION BY COMMERCIAL MEANS
PHS&T	CONTRACTOR	PART OF DDN PMO PROGRAM
ILS T&E	CONTRACTOR	DEPOT AND NOC
FACILITIES	CONTRACTOR	

# COMPETITIVELY PROCURED CONTRACTOR SUPPORT (WITH GFE SPARES)

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## BASELINE COMPARISON SYSTEM

## ALTERNATIVE CONCEPT

<u>LOGISTICS ELEMENT</u>	<u>FULFILLED BY</u>	<u>ADDITIONAL REQUIREMENT</u>	<u>COST IMPACT</u>
MAINTENANCE	SOLE SOURCE	CONTRACTOR	— FROM COMPETITION
SUPPLY	SOLE SOURCE	GOVERNMENT	+ NO SHARING, PROVISIONING
S.E.	CONTRACTOR		
DATA	CONTRACTOR	GOVERNMENT	+ RIGHTS, TECH MANUALS
MANPOWER	CONTRACTOR		
TRAINING	CONTRACTOR		
PHS&T	CONTRACTOR		
ILS T&E			
FACILITIES	CONTRACTOR		

# COMPETITIVELY PROCURED CONTRACTOR SUPPORT (WITH CFE SPARES)

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## BASELINE COMPARISON SYSTEM

## ALTERNATIVE CONCEPT

<u>LOGISTICS ELEMENT</u>	<u>FULFILLED BY</u>	<u>ADDITIONAL REQUIREMENT</u>	<u>COST IMPACT</u>
MAINTENANCE	SOLE SOURCE	CONTRACTOR	- FROM COMPETITION
SUPPLY	SOLE SOURCE	CONTRACTOR	+ NO SHARING, RISK, POTENTIAL MARK UP
S.E.	CONTRACTOR		
DATA	CONTRACTOR	GOVERNMENT	+ RIGHTS, TECH MANUALS
MANPOWER	CONTRACTOR		
TRAINING	CONTRACTOR		
PHS&T	CONTRACTOR		
ILS T&E			
FACILITIES	CONTRACTOR		



# ORGANIC ON-SITE AND COMPETITIVELY PROCURED OFF-SITE SUPPORT

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## BASELINE COMPARISON SYSTEM

## ALTERNATIVE CONCEPT

<u>LOGISTICS ELEMENT</u>	<u>FULFILLED BY</u>	<u>ADDITIONAL REQUIREMENT</u>	<u>COST IMPACT</u>
MAINTENANCE	SOLE SOURCE	GOVERNMENT ON-SITE CONTRACTOR OFF-SITE	UNK MANAGEMENT REQUIRED — FROM COMPETITION
SUPPLY	SOLE SOURCE	GOVERNMENT	+ NO SHARING, PROVISIONING
S.E.	CONTRACTOR	GOVERNMENT	UNK COMMON VS PECULIAR
DATA	CONTRACTOR	GOVERNMENT	+ RIGHTS, TECH MANUALS
MANPOWER	CONTRACTOR	GOVERNMENT ON-SITE CONTRACTOR OFF-SITE	UNK POLICY ISSUES — FROM COMPETITION
TRAINING	CONTRACTOR	GOVERNMENT ON-SITE	+
PHS&T	CONTRACTOR	GOVERNMENT	UNK
ILS T&E			
FACILITIES	CONTRACTOR		

# ON AND OFF-SITE ORGANIC SUPPORT

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## BASELINE COMPARISON SYSTEM

## ALTERNATIVE CONCEPT

<u>LOGISTICS ELEMENT</u>	<u>FULFILLED BY</u>	<u>ADDITIONAL REQUIREMENT</u>	<u>COST IMPACT</u>
MAINTENANCE	SOLE SOURCE	GOVERNMENT	UNK MANAGEMENT REQUIRED
SUPPLY	SOLE SOURCE	GOVERNMENT	+ NO SHARING, PROVISIONING
S.E.	CONTRACTOR	GOVERNMENT	UNK SITE, COMMON VS PECULIAR + DEPOT S.E.
DATA	CONTRACTOR	GOVERNMENT	+ RIGHTS, TECH MANUALS
MANPOWER	CONTRACTOR	GOVERNMENT	+ NO SHARING, POLICY ISSUES
TRAINING	CONTRACTOR	GOVERNMENT	+
PHS&T	CONTRACTOR	GOVERNMENT	UNK
ILS T&E		GOVERNMENT	+
FACILITIES	CONTRACTOR	GOVERNMENT	+ DEPOT FACILITY

# **QUANTITATIVE ANALYSIS**

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- **LOGISTICS SUPPORT COST MODEL**
  - **RELEVANT INCREMENTAL COSTS**
- **SOURCES OF INFORMATION**
  - **DDN PMO**
  - **SM ALC**
  - **DDN PRINCIPLE CONTRACTOR**
  - **DCA OC**
  - **DCA COST AND PLANNING FACTORS MANUAL**

# **QUANTITATIVE ANALYSIS**

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## **GROUND RULES**

- **CRITERIA**
  - **COST**
  - **OTHER QUALITATIVE FACTORS**
- **SOFTWARE SUPPORT NOT AN ISSUE**
- **MCs OPERATED BY DCA**
- **EXISTING HARDWARE ASSUMED NOT STOCK LISTED**
- **NAC SUPPORT SIMILAR TO TAC/PSN SUPPORT**
- **TEN YEAR SPAN FOR ANALYSIS**
- **NO GOVERNMENT SE WITH CONTRACTOR MAINTENANCE**

# **QUANTITATIVE ANALYSIS**

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## **ASSUMPTIONS**

- **COMPETITIVE SUPPORT POSSIBLE**
- **DATA RIGHTS AVAILABLE**
- **C-30 PROCESSOR STANDARD**
- **ON-SITE SUPPORT VARIES**
- **DEPOTS BACKLOGGED**
- **PHS&T COSTS CONSTANT, TIMES VARY**
- **SPARES AVAILABLE**
- **STABLE DEFCON 4/5**

# QUANTITATIVE ANALYSIS

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## RESULTS (\$1000)

	<u>BY</u>	<u>TY</u>	<u>PV</u>
SOLE SOURCE	B/L	B/L	B/L
COMPETITIVE	-6570	-11244	-723
COMP. DEPOT	-35081	-49567	-18206
ORGANIC	-32546	-46585	-16064

# **SENSITIVITY ANALYSES**

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## **IMPACT OF CHANGING MEAN TIME BETWEEN MAINTENANCE ACTIONS (MTBMA)**

**(PV \$1000)**

	<u>REFERENCE</u>	<u>+50% MTBMA</u>	<u>-50% MTBMA</u>
<b>SOLE SOURCE</b>	<b>B/L</b>	<b>-2830</b>	<b>8498</b>
<b>COMPETITIVE</b>	<b>-721</b>	<b>-846</b>	<b>-354</b>
<b>COMPETITIVE DEPOT</b>	<b>-18206</b>	<b>-19897</b>	<b>-13124</b>
<b>ORGANIC</b>	<b>-16062</b>	<b>-17845</b>	<b>-10724</b>

- REMAIN WITH SOLE SOURCE SUPPORT FOR  
RELIABLE EQUIPMENT**
- COMPETE INCREASED WORKLOAD FOR LOW RELIABILITY**

# SENSITIVITY ANALYSES

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## IMPACT OF INCREASING SPARES UNIT COST BY 50% (PV \$1000)

	<u>REFERENCE</u>	<u>INCREASING SPARES COST</u>
SOLE SOURCE	B/L	0
COMPETITIVE	-721	1916
COMPETITIVE DEPOT	-18206	-15609
ORGANIC	-16062	-13338

- IF SPARES COSTS INCREASE SOLE SOURCE  
SUPPORT BENEFITS FROM SHARING



# SENSITIVITY ANALYSES

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## IMPACT OF REDUCING ON-SITE OVERHEAD FOR COMPETITIVE MAINTENANCE

BY 15% VS. 50%  
(PV \$1000)

	<u>REFERENCE</u>	<u>SENSITIVITY</u>
SOLE SOURCE	B/L	N/A
COMPETITIVE	-721	18529

- COMPETITIVE SUPPORT PREFERRED ONLY IF SIGNIFICANT COST REDUCTIONS ARE LIKELY

# ISSUES

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## OTHER CONSIDERATIONS

- USERS' DESIRES OR DEMANDS
- PROGRAM STABILITY
- RISK AND UNCERTAINTY

# **OBSERVATIONS**

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- GFE SPARES LESS RISKY, EXPENSIVE THAN CFE SPARES
- COST NOT BASIS FOR COMPETITIVE CONTRACTOR SUPPORT
- ON-SITE SUPPORT MAJOR COST DRIVER
- ORGANIC SUPPORT COST REDUCTIONS COMPLICATED BY SUBJECTIVE ISSUES
- SUBJECTIVE ISSUES FAVOR COMPETITION

# RECOMMENDATIONS

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- MOVE TOWARD COMPETITIVE SUPPORT FOR DDN
- IMPLEMENT COMPETITIVE SUPPORT INCREMENTALLY
- EMPHASIZE COMPETING ON-SITE SUPPORT

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